Electrical World

NEWS ISSUE DECEMBER 14, 1946

Norman R. Gibson, left, Buffalo Niagara Electric Corp., Receives Holley Medal from D. Robert Yarnall, President of the American Society of Mechanical Engineers

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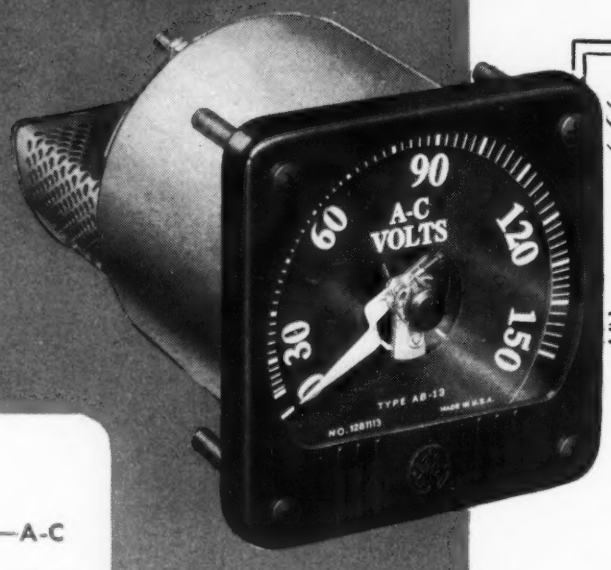
it's a

TOUGH instrument



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TYPES

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DB-13—D-C

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A-C & D-C

AMMETERS
A-C & D-C

WATTMETERS

VARMETERS

POWER-FACTOR METERS

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ALSO

Temperature Meters

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ELECTRICAL WORLD

NEWS ISSUE

VOLUME 126 NUMBER 24

DECEMBER 14, 1946

Gas Turbine and Combustion Equipment Progress Reported

Burner Using Non-Pulverized Crushed Coal and Reducing Slag and Stack Dust Troubles under Development at Commonwealth Edison—Nation's Coal Supplies Enough for Thousand Years

NEW FORMS of gas turbines, a new piece of combustion equipment, new information on national fuel resources, words of advice on smoke abatement studies, and new techniques for applying infrared heat effectively were some of the developments reported at the annual meeting of the American Society of Mechanical Engineers in New York, December 2 to 7.

Possibility of using crushed coal without pulverization along with reduction in slag and stack dust difficulties were asserted for a new cyclone burner under development at Calumet Station of the Commonwealth Edison Co. A. E. Grunert, co-author with L. Skog, of Sargent & Lundy, and L. S. Wilcoxson, added that a vertical design has now been installed. Details of the predecessor inclined horizontal unit will appear in ELECTRICAL WORLD for December 21.

Quicker cures of baked surfaces on materials of relatively poor thermal conductivity are obtainable by techniques aimed at better temperature uniformity through more advantageous distribution and intensity of infrared lamp banks, said P. H. Goodell of Trumbull Electric Mfg. Co. His paper presented a wealth of experimental data showing how factors normally viewed as qualitative can be the key to bettered product if reduced to quantitative terms.

Mineral fuel resources of this country total to 2.6 trillion tons of coal, oil, and gas if all are equated to 13,000 Btu. coal. Of this amount 98.8 percent is represented by coal and lignite, according to A. C. Fieldner of the Bureau of Mines. He estimated that these should last well over a thousand years and foresaw much promise, provided the heavy capital expenditures are made available, in converting the feasible grades of coal to gaseous and liquid fuels. If either oil or natural gas had to take over all the tasks now borne by coal they would be exhausted in four to six years. Dr. Fieldner said the Gorgas gasification experiment (ELECTRICAL WORLD, November 30, Page 5) is to be applied on a 30-in. thick peninsular vein that can be isolated, and will be aimed first toward getting better guides on how the process can be rendered effective.

Often overlooked factors in customary smoke abatement agitations and surveys were brought out by H. F. Hebley, Pittsburgh Coal Co. His paper emphasized the limitations of the Ringelmann chart and the customary apparatus for collecting atmospheric samples as well as urging that the problem has facets in the fields of climatology, medicine, chemistry and economics—most of them ignored by the community uplifters in

MILITARY POWER SUCCEEDS ELECTRIC POWER—Members of an Ohio Guard company receive arms to be used as they patrol the streets of Hamilton, Ohio, and protect life and property during a blackout brought about by the closing of the municipal power plant because of lack of coal

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their zeal to clean up the air we breathe.

Boosting of gas-turbine pressures by means of a pressure-exchanger called a "Comprex" was tendered by Adolph Meyer (Brown-Boveri & Co. of Baden) as a means of increasing the output of open-cycle units by 50 percent. Fuller details of the "piston" or pneumatic ram action by which compression is raised from 4 to 10 atmospheres will be set forth in an article by the author to appear in the January 4, 1947, issue of ELECTRICAL WORLD. He said a 27,000-kw. gas turbine functioning on this basis will be installed on a utility system in Switzerland for use on the 1947-1948 winter load.

An experimental gas turbine of 2,000 hp. which was said to be the forerunner of designs appropriate for utility generation units was described by T. J. Putz of Westinghouse. The details were set forth in ELECTRICAL WORLD, December 7, Page 109.

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U-14 Cancelled as Lewis Sends Miners to Work

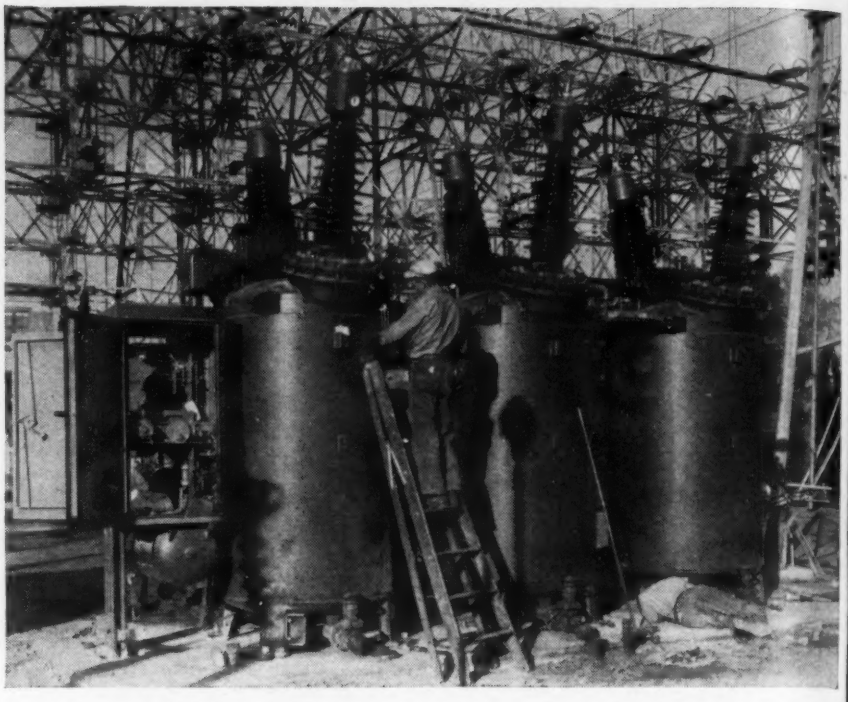
Government curtailment of electric utility service was abandoned and restrictions on deliveries of coal were eased within a few hours after John L. Lewis' abrupt decision to call off the disastrous soft coal strike on December 7.

Order U-14, providing graduated schedules for reductions of electric power service, was cancelled immediately by Civilian Production Administration's Office of Emergency Controls. Order U-13 was maintained in force for a few days longer to afford relief for gas utilities whose supplies of fuel and gas reserves were seriously threatened with depletion.

Most of the industry consultants called in to staff OEC were relieved, and those who remained expected to wind up the agency's activities late this week. Before Lewis announced the strike was over (at least until April 1), OEC was preparing to extend the limitations of U-14 to the Southeastern states and to put into effect Schedules 2 and 3 of the order in some Northeastern areas.

Solid Fuels Administration dropped its "freeze" order on coal in transit and replaced other limitations on coal deliveries with an interim directive permitting utilities and other priority consumers to maintain 20-day supplies. This order later was amended to permit producers to ship unlimited stocks to utilities and other vital industries after all priority consumers had been supplied. One effect of this amendment, SFA officials said, would probably be to allow shipment to utilities of substantial supplies of off-grade coal which other consumers could not use in their furnaces.

SFA plans to remove coal delivery restrictions gradually until fuel stocks of vital industries have been built up to normal levels.



FINAL ADJUSTMENTS—Workmen make final adjustments on breakers at the Millbury, Mass., end of New England Power System's new 110-kv. line between the dispatching center at Millbury and Providence, R. I.

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500-Kv. Test Lines Will Be Completed Early in 1947

American Gas & Electric Service Corp. has revealed that it expects to have the 500-kv. test lines which are being built near Brilliant, Ohio, completed early in 1947. When the first announcement was made (ELECTRICAL WORLD, December 29, 1945, Page 6), it was expected that the lines would be completed by midsummer, 1946, but this was impossible because of strikes and material shortages.

The power transformers are now in place at the substation, the full-size steel towers are being erected, and conductors of five different types have been delivered. Other equipment is expected shortly.

•

Will Add 3,500-Kw. Unit

Wellsboro (Pa.) Electric Co. will install a 3,500-kw. unit to raise its capacity to 6,000 kw.

Master Contract Taken Up by Duquesne Arbitrators

Whether the Duquesne Light Co. should sign a master contract covering all of its employees or whether the company and eight affiliated companies should each sign a contract covering its own employees was the first point taken up this week as arbitration meetings began at Pittsburgh. Arbitration was agreed to by both company and union to end the lengthy strike of Duquesne employees in September and October.

The arbitrators are Maurice R. Scharff, New York consulting engineer, appointed by the utility; George L. Mueller, president of the independent union; and George E. Strong, appointed by Secretary of Labor Lewis Schwellenbach.

•

Canadian Output Statistics

The Dominion Bureau of Statistics has released the following output statistics of Canadian central electric stations in thousands of kilowatt-hours

Period	1946	1945
Eight months	27,548,989	27,186,581
Primary	22,356,465	22,562,698
Secondary	5,192,524	4,623,883
Exports to U. S.	1,783,271	1,754,295
August	3,439,934	3,237,632
Primary	2,801,294	2,723,892
Secondary	638,640	513,740
Exports to U. S.	232,402	229,740
July	3,422,826	3,281,138
Primary	2,768,697	2,714,572
Secondary	654,129	566,566
Exports to U. S.	251,522	263,700

Conciliation Service Meeting Brings Out Divergent Views

Labor Representatives Emphasize Voluntary Arbitration but Utility Men Believe Legislation Is Needed to Permit True Collective Bargaining Locally—Other Conference Expected

EXPONENTS of fundamentally divergent views about the existing status of labor relations in the public utility field was brought face to face at this week's meeting in Washington of utility management and utility labor leaders, sponsored by the U. S. Conciliation Service.

In point of results, the meeting could be called neither a failure nor a success, it became apparent after conversations with participants. It was agreed that the problems existing in various branches of the public utility field will be studied separately and will be the subject of additional meetings. The entire conference, according to its statement, is expected to be "reconvened at a later date."

Electric utility representatives indicated they expect a call to a meeting with unions representing their workers, but nothing definite is now known about such a meeting. Possibility that it might be held in January was mentioned.

The Washington meeting was marked by a very cordial atmosphere, it was learned. Labor representatives seemed anxious to drive home to the public the point that the record of utility strikes was not at all a bad one. Attempts to make this clear in the statement issued by the conference led to some disagreement, and the statement which finally issued was distinctly weaker on several points than had been proposed.

E.E.I. representatives made plain their desire to join in the evolution of procedures aimed at halting utility service disruptions, but the approaches they regarded as vital to such an end differed from those advocated by the utility labor representatives.

Emphasis by the labor representatives was on voluntary arbitration, whereas utility representatives emphasized their belief that legislative changes or additions are necessary to permit true collective bargaining locally, with equal and mutual responsibility between management and unions.

E.E.I. representatives took the position that voluntary arbitration is more of a last resort measure than anything else, and that the existence of good labor relations and bona fide collective bargaining locally would obviate most of the need for voluntary arbitration.

In preparation for any meeting which may be called to discuss labor problems in the electric utility industry, E.E.I. expected this week to attempt the formulation of a few very broad principles from which both parties could proceed. E.E.I. President Grover Neff was to report to the Institute's Board of Directors this week on the December 9 meeting.

It was emphasized that the formulation of such principles by an agency with such a broad membership would be a tedious and slow job and that relatively little could be accomplished in a short time. The value of such principles, it was pointed out, depends completely upon their acceptance first by the group which offers them and second by the group to which they are offered.

The statement approved by the participants of the Washington meeting follows:

"Both management and labor in the utility industries have a basic responsibility to the citizens of the communities which they serve. The representatives of industry and labor who have been meeting recognize that this responsibility requires every effort on their part to maintain industrial peace. These discussions will be continued in separate industry groups. It is expected that this joint conference will be reconvened at a later date."

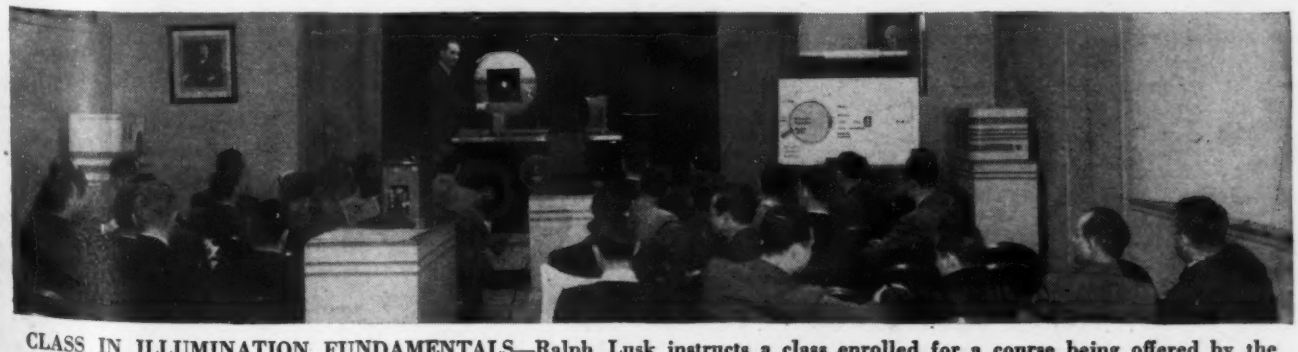
•

Yohalem Named Director Utilities Division, SEC

Announcement has been made of the appointment of Morton E. Yohalem as director and of Robert F. Krause as associate director of the public utilities division of the Securities and Exchange Commission. Mr. Yohalem succeeds Milton H. Cohen, resigned. The commission also announced the appointment of Philip R. Friend to the position of assistant director formerly held by Mr. Krause.

Appointed to the staff of SEC in 1938, as a senior attorney in the New York regional office assigned to work on reorganization proceedings under Chapter X of the Bankruptcy Act, Mr. Yohalem was transferred to the Washington office in 1941. where he became a supervising attorney. In 1942 Mr. Yohalem was transferred to the public utilities division.

Mr. Krause has served in various legal capacities in the public utilities division since his appointment in 1938, and Mr. Friend has been connected with the public utilities division since 1935.



CLASS IN ILLUMINATION FUNDAMENTALS—Ralph Lusk instructs a class enrolled for a course being offered by the Chicago Lighting Institute. Twelve two-hour lecture sessions are conducted on light sources, control, lighting surveys, and commercial and industrial applications; and six laboratory sessions are held at the Illinois Institute of Technology

NORTHWEST ENGINEERING COMMITTEE—The executive committee of the Engineering and Operation Section, Northwest Electric Light and Power Association, at Spokane late in November when they made arrangements for their spring meeting. Seated, left to right, M. T. Crawford, Puget Sound Power & Light Co.; John Bankus, Portland General Electric Co.; L. R. Gamble, Washington Water Power Co.; R. J. Davidson, Pacific Power & Light Co.; W. L. Thrailkill, Washington Water Power; O. L. LeFever, Northwestern Electric Co.; A. L. Pollard, Puget Sound. Standing, left to right, H. H. Schoolfield, Pacific Power; H. M. Jones, Idaho Power Co.; E. H. Collins, Washington Water Power; Joseph Henkle, Portland General Electric; Joseph Hellenthal, Puget Sound; Berkeley Snow, Association secretary

$47,000,000 Program Set Up by Georgia Power Co.

A $47,000,000 construction program including the addition of 145,000 kw. of generating capacity has been formulated by Georgia Power Co. The program covers work from now until the end of 1949. Of the $47,000,000, $15,000,000 will be allocated for four new steam-electric generating units, all to be completed by the end of 1948. The remaining $32,000,000 will be used for distribution, transmission and substation facilities.

An important item is the $1,750,000 for 1,300 miles of new rural lines. This work ties in with the present building program of the REA cooperatives, and the two will give the state a complete "framework" of power lines from which additional farm customers can be served by means of short extensions.

In addition, Georgia Power has filed application with the Federal Power Commission for a license to resume work on the 60,000-hp. Furman Shoals hydroelectric plant on the Oconee River near Milledgeville. Work on this project will start upon completion of the steam plant additions. Estimated cost of Furman Shoals is $7,000,000.

Georgia Power will install two 22,500-kw. units in the new Albany steam plant, a fourth 40,000-kw. unit at Plant Arkwright near Macon, and a fourth 60,000-kw. unit at Plant Atkinson near Atlanta. Delivery of the first Albany unit is expected in time for installation by July, 1948, and the second unit for delivery by the end of 1948. The Plant Arkwright unit is to be ready for operation by July, 1948, and the unit for Plant Atkinson by September, 1948.

Completion of the fourth units at Plants Atkinson and Arkwright will finish out the long-range plans for expansion of these generating stations. Atkinson will have a total capacity of 240,000 kw., and Arkwright will have 160,000 kw.

The company plans the construction of 120 miles of 110-kv. line to tie the Albany plant with the company's statewide system and also directly with lines of Alabama Power Co. One line will run from the plant through Moultrie to Tifton, and the other from the plant to a point in Alabama. A 44-kv. line will be constructed from the plant into Albany.

•

Distribution System Sold

Ownership of the Velasco (Tex.) electrical distribution system was assumed October 14 by the Houston Lighting & Power Co. Sale of the properties, formerly owned by the Community Public Service Co., Fort Worth, was previously approved by voters.

Wyoming Co-op Purchases Systems of 2 Municipalities

Two small municipal power systems in eastern Wyoming will be acquired by the Tri-County Electric Association, Inc., of Sundance with a portion of a recent $855,000 loan from the Rural Electrification Administration.

Tri-County, a newly organized cooperative, will pay $35,000 for the 3.5-mile distribution system and 98-kva. engine-driven power plant of the Sundance Light & Power Department. The co-op also is purchasing the Upton Municipal Light & Water Department's three miles of distribution lines and 150-kva. generating unit for $35,000. Co-op officials said that both generating plants will be scrapped since arrangements have been made for energy supplies from the steam plant of the Wyodok Coal Co., near Gillette, Wyo.

A 45-mile, 34.5-kv. transmission line will be built from the coal company plant to Sundance, Upton, and Osage. This is part of the co-op's $777,500 program of line building, which includes 411.6 miles of single-phase and three-phase distribution lines, 34 miles of transmission underbuild, 20.4 miles of secondary and 4.5 miles of service lines.

The system to be acquired served 153 consumers at Sundance and 170 at Upton. The co-op plans to serve 823 consumers.

Human Relations Stressed at Pacific Coast Meeting

Management Told It Must Help People Develop Themselves and That Company President Must Be Senior Personnel Man —Liquid Gas Competition and Engineering Topics Discussed

MEETING for their annual fall work conference, more than 400 members of the Pacific Coast Electrical Association gathered at Fresno, Calif., December 5-6.

The only general assembly was given over to the subject of human relations. Ben L. Wells, consultant in leadership training, showed that by careful analysis of human traits and the use of applied psychology men can be mentally remolded and better fitted to occupy positions requiring leadership. Management must participate in training programs and help people develop themselves, and the president of a company must be its senior personnel man, he said.

Human relations was broken down into employee and customer relations in further discussion in the Administrative Services section. They also discussed the responsibility of the utility in servicing customers' equipment and concluded that the power company should drop out of this field where dealers and other agencies have facilities for adequate servicing. In many rural areas they felt, however, that the utility would have to continue to do the job. They were of the opinion, too, that a charge must be made for labor as well as the parts they have charged for in the past.

Liquid petroleum gas competition was a major topic of discussion in the Business Development section. Highlights were: The liquid petroleum gas industry is profiting by the electrical industry's drive for modern kitchens; the water heater is liquid gas's entering wedge; a check made in California showed that in straight electric territory, liquid gas has a 26 percent saturation; 96 percent of use is for cooking, 77 percent for water heating, 31 percent for house heating, 4 percent refrigeration, and 4 percent miscellaneous agricultural uses; first reason for buying was low cost; high cost of wiring was given by 8 percent as reason for buying.

SECTION LEADERS—G. M. Henderson, left, vice-chairman, and Leon S. Heseman, chairman of the Administrative Services Section of the P.C.E.A.

On the point of wiring, V. W. Hartley said that with our present high cost of installation we are reaching only a class market and not until we bring down costs will it become a mass market. Favorable terms will be neded if the electrical industry is to compete with other durable goods, said I. P. Pruitt, General Electric Credit Corp. This is emphasized by the fact that 40 percent of the families of the country have less than $50, and 70 percent less than $1,000 in liquid assets. Installation cost is a serious obstacle to the all-electric kitchen, and dealers must assume the responsibility for making the entire installation so that the customer will not have to deal with several parties, it was brought out.

THE PRESIDENT CONFERS—K. L. Hampton, left, chairman of the Business Development Section, and M. G. Sanders, president of the P.C.E.A.

In the Operating Economics section a wide variety of subjects was covered. One topic of considerable interest was life determination of alternator windings. Three companies reporting brought out the need for more case histories of machines from which life expectancy data can be compiled. Also, the need for a method of testing to determine when windings should be replaced, was emphasized. There is no standard practice at present, even among manufacturers. Southern California Edison Co. has been following the practice with success of subjecting windings to 150 percent rated voltage at the time of annual overhaul as a means of determination.

CHAIRMEN—E. W. Meise, left, vice-chairman, Business Development Section, and C. J. Nevitt, chairman, Operating Economics Section, P.C.E.A.

A session on tie line load control of interconnected systems brought out the fact that automatic control is almost imperative for economical loading of ties and successful system operation. Insulator washing practices, distribution circuit reclosing practice, long-span rural construction, low-cost underground for small towns, maintenance of static capacitors and hydrogen-cooled machines, standardization of regulators, and problems of metermen were among a number of other topics discussed.

•

Operating Revenues Rise 8.1 Percent in September

Electric operating revenues of the larger privately owned electric utilities in the United States in September, 1946, were $274,536,000, compared to $253,933,000 in September, 1945, an increase of 8.1 percent, according to the report of the Federal Power Commission.

Revenue deductions (including operating expenses, depreciation and taxes) were $210,454,000, or 12.3 percent over those of September, 1945.

Gross income, including other utility operating income, amounted to $72,302,000, a decrease of 2.9 percent for the month. Net income, however, due to decreased income deductions, was up 27.0 percent to $51,278,000 compared to $40,389,000 reported for September, 1946.

Supreme Court to Review Foremen's Unions Status

Management and employees of electric utilities viewed with considerable interest this week's decision by the Supreme Court to review a test case on the legal status of foremen's unions involving the Packard Motor Car Co. and the National Labor Relations Board.

The key issue in this proceeding was developed when the Sixth Circuit Court of Appeals sustained an NLRB finding that supervisory personnel in the Packard plant were "employees" within the meaning of the Wagner Act. Packard, in its request for a Supreme Court review, protested that this ruling would "throw the foremen in the union stream with the very men they supervise and subject them to union pressure."

The Packard case grew out of attempts, starting three years ago, by the Foremen's Association of America to gain recognition as bargaining agent for several groups of supervisory workers of the motor firm.

Another important case involving collective bargaining rights of foremen is now before NLRB, which certified the United Mine Workers of America as bargaining representative for foremen and other employees of two captive coal mines of the Jones & Laughlin Steel Co. U.M.W. has charged that the company is engaging in unfair labor practices by refusing to bargain regarding the foremen.

In a recent dispute over the organization of foremen, Virginia Electric & Power Co. agreed to recognize for one year a unit of the International Brotherhood of Electrical Workers representing 180 VEPCO supervisory workers. This temporary agreement, which averted a threatened walkout of the power company's organized employees, was arranged pending a settlement by the courts of the extent to which foremen may be organized.

•

German Scientists Can Stay, Take Positions in Industry

German and Austrian scientists who have been working in this country for the armed services are being "freed" as their contracts with the War Department expire to take positions in American industry, research laboratories, and educational institutions.

Most of the original group of 270 have proved their worth, and only a few are to be sent back, and only a few others desire to return to Europe. In addition to their work on military projects, their fields covered electronics, supersonics, fuels and lubricants, and diesel and turbo-jet engines. One scientist is working on a ceramic turbine blade covered with super-hardened "sintered ruby."

•

Agricultural Clinic Will Be Sponsored by E.E.I.

What the power company can do to improve farming methods and raise living standards in its area, through a program of agricultural development that is directly planned to increase the farmer's cash income, rather than sell electrical equipment, will be discussed at an Agricultural Development Clinic, to be held at Fairmont, W. Va., on January 24-25.

The Clinic, which is the first of its type ever scheduled by the electric utility industry, will be sponsored by the Agricultural Development Committee of the Farm Section of Edison Electric Institute, trade association of the industry. This Committee is preparing a national agricultural development program, in which all electric companies will be invited to participate, and which will incorporate practices already proved successful in the field.

The objectives of this program, and the methods in which it is being developed, will also be described during the two-day session.

About 35 power companies in 20 states have already indicated that they will be represented at the Clinic, according to Roy W. Godley, rural service manager of the Institute. Representatives of agricultural extension services, agricultural colleges and schools, and other agencies concerned with improving the farmer's economic status will also be present.

Fairmont was chosen as the site for this meeting to allow those attending the Clinic to observe the work of the agricultural development staff of the Monongahela Power Co. This company pioneered in the agricultural development field with an extensive program in 1936, and has since taken a prominent part in this activity throughout its entire service territory.

MEETINGS

Previously Listed

Canadian Electrical Association—Winter conference, Chateau Frontenac, Quebec, January 13-15.

Agricultural Development Clinic—Fairmont Hotel, Fairmont, W. Va., January 24-25.

American Institute of Electrical Engineers—Winter meeting, New York, January 27-31.

American Welding Society Presents Awards, Medals

The 1945-46 Samuel Wylie Miller Memorial Medal, the prizes of the Resistance Welder Manufacturers Association, the 1946 Lincoln Gold Medal, and the 1946 A. F. Davis Undergraduate Welding Awards, were presented at the annual banquet of the American Welding Society at its annual meeting held recently at the Ambassador Hotel, Atlantic City.

Award of the Samuel Wylie Miller Memorial Medal was made to James F. Lincoln, president of the Lincoln Electric Co., Cleveland, "whose belief in the value of electric arc welding has led him to most effective promotions of its use."

Julius Heuschkel, research engineer, Westinghouse Research Laboratories, East Pittsburgh, Pa., has been awarded the $750 first prize in the 1946 Resistance Welder Manufacturers' Association Prize Contest. This award was made for Mr. Heuschkel's paper entitled, "Selecting Spot Welding Schedules for Low Carbon Steels." Joseph J. Riley, sales engineer, Taylor-Winfield Corp., received the second prize of $500 for his paper on "Vibration of Spot Welds in Low Carbon Steel Over a range of Welding Variables." The third award of $250 went to Robert W. Bennett and Robert D. Williams, authors of the paper entitled, "The Flash Welding of Hard Drawn High Carbon Steel Wire."

The Lincoln Gold Medal was awarded to H. E. Kennedy for his paper, "Some Causes of Brittle Failures in Welded Mild Steel Structures," which appeared in the November, 1945, issue of *The Welding Journal*.

•

Co-op Planning Purchase of Eloy Light & Power Co.

Plans are being worked out for the purchase by the Trico Electric Cooperative, Inc., of the properties of the Eloy (Ariz.) Light & Power Co.

The proposed purchase price is $200,000, and the sale is contingent upon the cooperative's obtaining the necessary financial backing through the REA. The cooperative is composed of ranchers and farmers in Pinal, Pima, and Santa Cruz Counties in Arizona.

The Eloy Light & Power Co. for months has been the subject of a probe by the Arizona Corporation Commission as a result of complaints by its customers that its rates are excessive. Some time ago, the commission determined that the rates were not proper, and an 8 percent decrease was effected.

NEWS ABOUT PEOPLE

McMeekin Elected President of South Carolina Utility

Norman H. Coit has been made chairman of the board of directors of the South Carolina Electric & Gas Co., Columbia, and S. C. McMeekin has been promoted to Mr. Coit's former position of president. Mr. McMeekin has been executive vice-president since 1944.

These changes took place at a recent meeting of the board, at which it was announced that all steps had been taken by the General Public Utilities Corp. to relinquish its control of the South Carolina company. The board

S. C. McMeekin

has been reconstituted so that the directors are now all residents of the territory served by the company in central South Carolina.

J. M. Costello, controller and treasurer from 1924 to 1937 and more recently associated with the Virginia Electric & Power Co. as assistant to the president, was elected a vice-president and a member of the board last October.

Mr. McMeekin obtained his early utility experience as superintendent of transmission and subsequently assistant superintendent of operations with the Broad River Power Co., a predecessor company in Columbia. In 1935 he became connected with a group of utilities operating in Missouri, Oklahoma, New Mexico, and Arizona, as manager, and in 1939 he was elected president of the group. Mr. McMeekin returned to Columbia two years ago to become executive vice-president of the South Carolina Electric & Gas Co.

•

V. M. Marquis Joins A.G. & E. Service Corp. in New York

V. M. Marquis has been appointed systems planning and operating engineer of the electrical engineering division of the American Gas & Electric Service Corp., New York. Since September, 1945, Mr. Marquis has been assistant chief of the division of transmission and hydraulic engineering of the Pacific Gas & Electric Co. Before entering government service during World War II, he had been connected with the American Gas & Electric system.

Mr. Marquis was graduated from Stanford University in 1921 as a mechanical engineer and the following year received his degree of electrical engineer. While taking the test course of the General Electric Co., he earned a master of science degree at Union College. Thereafter, he served with G. E.'s a.c. engineering department, later transferring to the central station engineering department. In 1928 he became identified with A. G. & E.

He joined the Power Branch of the old Office of Production Management in 1942 to work on power supply problems, later becoming chief of the western regional unit of the Power Division's Power Supply Section, in charge of power supply for eleven Pacific Coast States. It was on January 1, 1945, that Mr. Marquis was named director of the Office of War Utilities' Power Division, when Barclay J. Sickler resigned. His connection with P. G. & E. followed in the fall of 1945.

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▶ Chester B. Eaton has been appointed sales promotion and advertising director of the Central Vermont Public Service Corp., Rutland, a newly created position in this utility. He was graduated from the University of Vermont in 1934 and prior to army service in World War II was assistant national director of publications for the Boy Scouts of America, with offices in New York City.

T. H. Soren Retires; Knight Elected to Succeed Him

Towsend H. Soren, vice-president of the Hartford Electric Light and Connecticut Power companies, and for many

T. H. Soren

years in charge of engineering and power plant construction for both utilities, is to retire from that position on January 1, 1947. His assistant, Fred D. Knight, of West Hartford, has been

Bachrach

F. D. Knight

elected to succeed him. Mr. Soren will continue as a director of both companies and has been retained as consulting engineer.

A native of Boston and a graduate of Harvard, Mr. Soren was, until 1916

electrical engineer for the General Electric Co. He was located at its Schenectady plant until 1895 when he became district engineer at Atlanta, Ga., and a year later took charge of construction for the Metropolitan Street Railway, New York, also being identified with the installation of electrical equipment for the Interborough Rapid Transit System, the Hudson River tunnels and the New York Central Railroad electrification. Joining the Hartford company in 1916, he took charge of the plant and system extension programs, and under his direction the pioneer commercial applications of the mercury vapor process were made at the Dutch Point and South Meadow stations, with challenging implications based on many years of economical operation at Hartford.

Mr. Knight is a native of Limerick, Me., and was graduated from the University of Maine as an electrical engineer. Before joining the Hartford company in 1941 he had a long period of service with the Boston Edison Co., where he filled the position of superintendent of production. Previously, he was construction superintendent for the Stone & Webster Engineering Corp., in charge of power plant developments in numerous states. He was superintendent of construction in that capacity on the original development of the South Meadow station at Hartford in 1920, and is well known in central station operating circles, having also been active in the work of the national engineering committees of the Edison Electric Institute and the Association of Edison Illuminating Companies.

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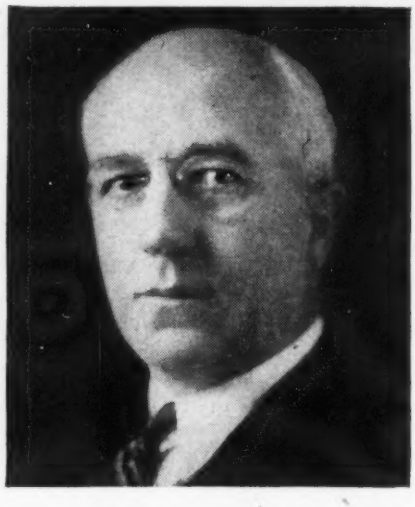
▶ JAMES HENDERSON has been appointed president of the Hilo, Hawaii, Electric Light Co. to succeed the late John M. Ross. Mr. Henderson, vice-president of the company since 1923, also has been a leader in the territory's sugar industry. He went to Hawaii from his native Aberdeenshire, Scotland, in 1900 and was associated with the sugar industry through 1922. Mr. Henderson is a past-president of the Hilo Chamber of Commerce and has served as a director of the Hilo Gas Co.

▶ HAROLD J. MERILEES, public relations assistant, will become head of a new department of public information, established under a reorganization of the public relations, publicity and advertising branches of the B. C. Electric Railway Co. Ltd., Vancouver, B. C. JAMES LIGHTBODY, for many years publicity manager, will take charge of a new department of publications, which will produce company periodicals.

OBITUARY

Preston S. Arkwright

Preston S. Arkwright, chairman of the board of the Georgia Power Co., Atlanta, whose death was announced in the December 7 issue of ELECTRICAL WORLD, page 88, for many years had



been nationally recognized as a leader in the electric light and power industry.

An early advocate of sound public relations, Mr. Arkwright brought into play his high ideals of service, building up a consolidated and coordinated utility system in Atlanta from what was an infant electric lighting business. A native of Savannah, Ga., and a graduate of the University of Georgia, he studied law and received the bachelor of laws degree in 1891. In the course of his practice in Atlanta, he became associated with H. M. Atkinson, one of the pioneers in the development of the street railway business and the electric light industry, then at its very beginning.

As a result of this association, when the Georgia Railway & Electric Co. was formed by Mr. Atkinson in 1902, Mr. Arkwright was elected president of the new company. He continued as president of its two successor companies—Georgia Railway & Power Co., formed in 1912, and the Georgia Power Co., formed in 1927, until 1945 when he was elected chairman of the board of directors.

Mr. Arkwright served as president of both the old National Electric Light Association and the Association of Edison Electric Illuminating Companies. In recognition of his civic activities, he was designated in 1937 as "First Citizen" for his outstanding services to Atlanta and Georgia. An outstanding contribution by Mr. Arkwright toward the development of his native state is the contribution which he made through his company to rural electrification, placing the organization and facilities of the company behind the rural cooperative movement. As a reflection of the prestige which he established for fair dealing with labor, Mr. Arkwright was appointed chairman of the Atlanta Labor Mediation Board in 1941.

Mr. Arkwright was signally honored by his company recently when the board of directors selected the name "Plant Arkwright" for the company's new steam-electric generating station near Macon which was placed in service in 1941.

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Charles M. Cohn

Charles M. Cohn, chairman of the board of directors of the Consolidated Gas, Electric Light & Power Co. of Baltimore, died in that city on December 5 of a cerebral thrombosis after an illness of a day. He was 73 years old.

Mr. Cohn had been connected with the public utility industry in Baltimore for more than 60 years. A native of Baltimore, he joined the Consolidated Gas Co. of Baltimore, a predecessor of the present company, in 1885, as an office boy. While working for the company in various capacities, he continued his education, received an LL.B degree from the University of Maryland in 1895 and was admitted to the bar that year. In 1906 the gas company and other concerns were merged to form the present company, with Mr. Cohn becoming secretary. He had been successively vice-president, executive vice-president and in 1942 was named president. The following year he became chairman of the board, retaining the presidency. It was early this year, at his own request, that he relinquished that office.

Mr. Cohn was a former director of the Pennsylvania Water & Power Co. and the Safe Harbor Water Power Corp.

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▶ CHARLES M. YALE, who recently retired as superintendent of distribution of the Hartford (Conn.) Electric Light Co., (ELECTRICAL WORLD, December 7, page 152), died on December 7 in a hospital in Miami, Fla., at the age of 68. He had been a winter visitor in Miami for several years.

▶ THOMAS G. KELLY, district manager of the Oklahoma Gas & Electric Co. at Ada, Okla., died in that city on November 30 at the age of 61. He was manager of the Poteau district from 1928 to 1930, when he was transferred to Ada. Mr. Kelly had been identified with the company in Arkansas and Oklahoma for 37 years.

An old wish and a new hope

Another year is filed away in the vault of Time—and Christmas lives anew in the hearts of men. Our season's wish for our friends is the wish that remains unchanged by the passing of years—happiness, a full measure of life's bounties, success during the coming year, and the next, and the next after that.... We face the New Year with confident faith that the problems which beset mankind can best be met by returning—and adhering—to the principles of living given to the world two thousand years ago by the Teacher whose Nativity we celebrate.

Line Material Company, Milwaukee 1, Wisconsin

Again Line Material has issued a gay Christmas Book, a delight for young and old. It is now being mailed. If you do not receive a copy and would like one, please let us know.

THE LABOR CRISIS

. . . "Absolute power corrupts absolutely"

THE NEW CONGRESS is going to overhaul the federal laws governing organized labor. If the election returns left any doubt about that, John L. Lewis has removed it by torturing the nation with its second soft coal strike in six months.

If, however, the overhauling is to get at the roots of our labor troubles, it must go further and deeper than most of the proposals would go. Indeed, it must not stop until it has dealt decisively with that most basic cause of devastating trouble — the entrenched monopolistic power of enormous international unions, now concentrated in a handful of union leaders. Industry-wide collective bargaining is one outgrowth of this power.

"Power tends to corrupt, and absolute power corrupts absolutely." That great truth, phrased by the historian Acton, is as true of labor leaders as it is of business leaders, princes or potentates. It is also true that John L. Lewis and some of his fellow labor leaders now wield what approaches absolute power in their respective domains. Failure to recognize these facts and act on them can make a tragic mockery of the present opportunity to restore good sense and good order to our labor relations and our national life.

To realize this opportunity the labor monopoly must be made a major target.

In the minds of many people, particularly in the business community, the root cause of our labor troubles is to be found in the National Labor Relations Act, commonly called the Wagner Act. They feel that if they could get rid of the one-sided handling of a number of key labor problems provided by that act and its administrators, we would have the legislative part of the problem of creating good labor relations pretty well solved.

To be sure, there is occasion, long overdue, to balance up the lopsided treatment of labor relations by the Wagner Act and those who apply it. It has been so interpreted and applied as to deny free speech to employers. On occasion it has extended the special protection of the federal government to workers striking to force employers to break the law. It has done the same for workers striking to force the federal government to change its policy the way the strikers want it changed.

The Wagner Act has required employers to bargain with unions, but imposed no companion obligation upon unions to bargain with employers. It has given protection to workers who have broken their agreement by striking. It has been applied so as to break orderly lines of management by encouraging and giving special protection to union organization of foremen who, to do their work efficiently, must represent management. Abuses such as these should be cleaned up, and soon.

Monopoly is the Target

But if perfection were attained in eliminating all of the abuses stemming from the Wagner Act, numerous and grievous as they are, the basic problem of establishing the legislative foundations of sane and safe labor relations in the United States would by no means be solved. John L. Lewis and his fellow labor dictators would, no doubt, be annoyed, but their power would not be seriously impaired. *That power is derived from monopoly control of labor.* Just as in the case with any other kind of monopoly power, it will only be made subservient to the public interest by attacking it at the source and smashing it.

The way to do that is to apply the anti-monopoly laws to monopolies in the field of labor just as they are applied to business and industrial monopolies. At the same time more vitality should be pumped into these laws all along the line.

When our basic anti-monopoly law, the Sherman Antitrust Act, was passed in 1890, it was designed to apply to economic monopolies of all kinds, and was so held by the courts. Organized labor sought exemption from this law, largely on the ground that its bargaining power was weak, as compared with that of industrial corporations. In recent decisions, a majority of the United States Supreme Court

justices have held that, when combined with the Clayton Act of 1914, the Norris-La Guardia Act of 1932 gives organized labor virtually complete exemption from the antitrust laws.

In the meantime, the relative weakness in bargaining power which was made the occasion for exempting organized labor from the antitrust laws has become a myth. In soft coal, John L. Lewis is the monopolist. Through his United Mine Workers he controls about 90% of the miners. No one of the thousand or more highly competitive companies engaged in soft coal mining controls more than about 5% of the output.

In steel the monopoly control is that of Philip Murray's United Steel Workers whose organization represents well over 80% of the production workers in that industry. United States Steel, the corporate "giant," controls only about one-third of the steel making capacity. In automobiles the United Automobile Workers represent about 90% of the production workers. A year ago the union's officers flaunted their monopoly power by announcing plans to pick off one automobile manufacturer after another by a series of centrally controlled strikes.

Industry-Wide Bargaining

Confronted by the rise of government-fostered monopoly power in the hands of organized labor, employers in some industries have sought to match it by joining together for collective bargaining on a more or less industry-wide basis. In other industries, notably steel, the federal government, through the War Labor Board, took the lead in forcing a pattern of industry-wide bargaining. Bedevilled by a myriad of cases, the Board thus sought to settle scores of them in the steel industry by one action.

It is easy to understand how an employer, confronted by an industry-wide monopoly of labor, would be tempted to join with his fellow employers in an industry-wide bargaining group. In that way he might see a chance to establish something like equality in bargaining power.

However, if the employers' bargaining group were as effective as the union in creating a monopoly set-up, it would merely confront one monopoly with another. That, in turn, would heighten the chances of having either a devastating head-on collision as a result of failure to agree, or having the two monopolies reach an agreement at the expense of the consuming public.

Actually, however, the chances that employers can create an industry-wide bargaining group as tight as that created on the side of labor by union organization are virtually zero. For if a group of employers were to agree to shut down in unison or take other united steps to balance the bargaining power created by the threat of a monopolistic union to strike, they would unquestionably find themselves on the receiving end of an indictment for violation of the federal antitrust laws.

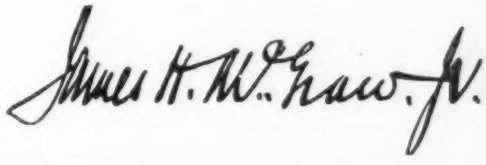
To Break the Monopoly

Thus, both from the point of view of the public and the point of view of the employer, industry-wide bargaining is no effective offset to the monopoly power created by industry-wide unions.

The only way to cope with this monopoly power is to subject it to the anti-monopoly laws in the same way business and industrial management are subjected. In the process industry-wide labor monopolies would be cut down to safe size, possibly by limiting the percentage of workers in any industry who are permitted to belong to a single labor organization.

Also application of anti-monopoly laws would clean out local pockets of labor monopoly which block the way of industrial progress. As matters stand, the freedom of unions from control by the antitrust laws permits organized workers in one city to refuse to install equipment shipped in from another city, thus establishing private tariff walls. It also permits organized workers to refuse to install or work on materials made by other workers whose union affiliation, or lack of it, they do not like.

If the anti-monopoly laws were applied to organized labor, boycotts of this sort would be outlawed. In the aggregate they now take a tremendous toll for no legitimate purpose. But primarily John L. Lewis and a handful of his fellow labor dictators might be cut down to a size that can be safely accommodated by the American democracy. If that is not done, the last great opportunity to give industrial and political democracy a chance to work, in its last great stronghold, will be lost. From such a tragic turn of events no one would lose more than the American worker.

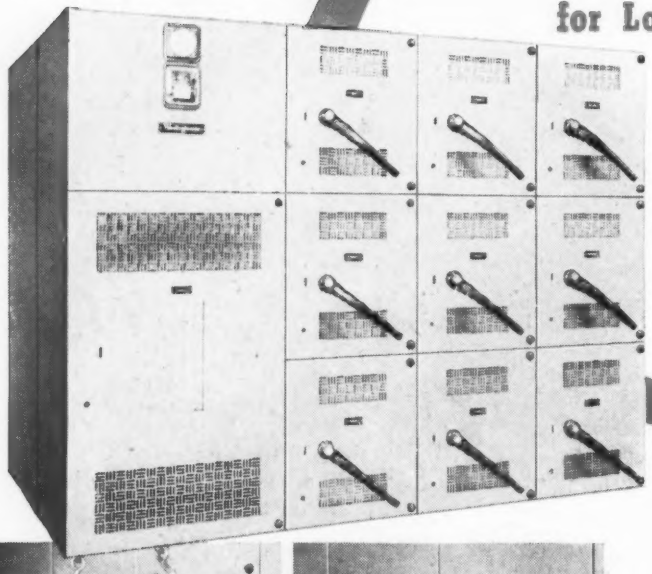


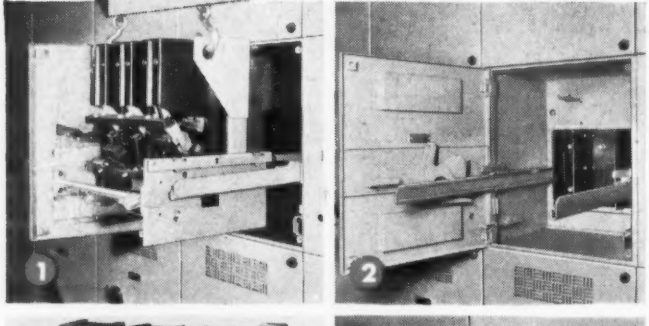
President McGraw-Hill Publishing Company, Inc.

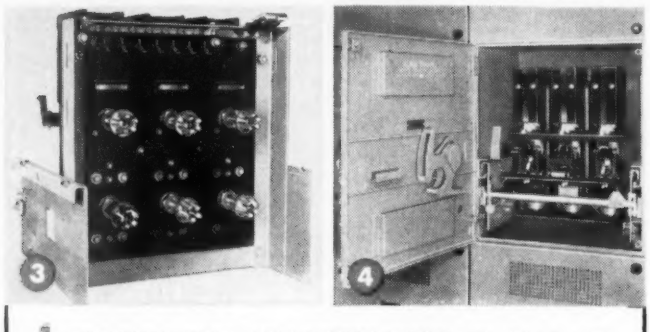
Dead-Front Safety

for Low-Voltage Switchgear

... yet easy to get at







1 **EXTENSION RAILS AND LIFTING IRONS**—furnished with switchgear—make removal of breakers for maintenance or repairs easy. Note that rear of breaker and cell parts are accessible with breaker on extension rails.

2 **COMPARTMENT READY TO RECEIVE A BREAKER.** Accurate assembly and careful testing assure that all breaker compartments are identical, breakers interchangeable.

3 **RESERVE BREAKER READY FOR SERVICE.** Note that female primary contacts are on the breaker, not in the compartment. This is an important advantage in maintenance.

4 **BREAKER IN OPERATING POSITION.** Under normal circumstances, and with reserve breaker at hand, the complete replacement can be made by one man in one to three minutes.

Quick and easy maintenance . . . with complete safety. One man can replace a breaker in from one to three minutes. Other plus features assure excellent continuity of service with Westinghouse "Unitized" Low-Voltage Switchgear. Standard height of units provides uniform appearance. Capacity may be expanded by adding units at either end of the original structure.

All breakers are enclosed in individual metal compartments and may be closed or tripped without exposing live parts. Doors to each compartment are interlocked to prevent opening while breaker is closed. Position of contacts on breaker and in the compartments is standardized and so accurately placed that similar breakers are interchangeable. The Westinghouse "De-ion" principle assures rapid arc quenching.

Every requirement up to 600 volts a-c is met by various combinations of 10 basic units. Each combination is assembled, wired and tested at the factory before shipping. The complete structure is delivered as a unit, ready for service.

There are many optional arrangements within the basic units. These are described with other complete details in Booklet B-2296-B. Call your Westinghouse office, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-60642

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

"UNITIZED" SWITCHGEAR

SEC RULINGS

The Securities and Exchange Commission recently issued a series of orders affecting electric utility companies.

CITIES SERVICE CO.'s capital contribution plan has been approved by the commission. Under the plan Cities Service would give a credit of $535,823 to the Republic Light, Heat & Power Co., Inc., and $4,000 to Doniphan County Light & Power Co., subsidiaries. Parent contributions would be made through surrender of 6 percent demand notes in like amount. Both companies would credit contributions to capital surplus. (Release No. 7006).

LUZERNE COUNTY GAS & ELECTRIC CORP., a subsidiary of United Gas Improvement Co., has been authorized to issue $1,350,000 of 1¾ percent promissory notes, due $450,000 each December 31, 1948-1950. Proceeds are to be used for additions to utility plant. (Release No. 6999).

NORTH AMERICAN CO.'s proposal to pay a dividend on its common stock in common stock of Pacific Gas & Electric Co. at the rate of one share of Pacific Gas common on each 100 shares of North American common has been approved. Dividend is payable January 2, 1947, to holders of record December 3, 1946. Fractions will be paid in cash at rate of 40 cents for each 1/100th of a share of Pacific Gas common. (Release No. 7010).

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Wisconsin Public Service Buys Goodman Light Co.

Wisconsin Public Service Corp. has received permission from the Wisconsin Public Service Commission to purchase the Goodman (Wis.) Light & Power Co. in Marinette County for $16,000.

The purchaser will construct a transmission line from Caldron Falls to Goodman and will build a substation at a total cost of approximately $162,400. The Goodman Lumber Co. will abandon its own power plant and will buy its power from Wisconsin Public Service at regular rates and will buy at least $11,250 worth of power every year.

The lumber company will advance one-half of the cost of the new line and substation, and in turn the utility will refund 20 percent of the annual power bill of the lumber company in excess of $11,250 for 20 years, the total refund not to exceed $80,000.

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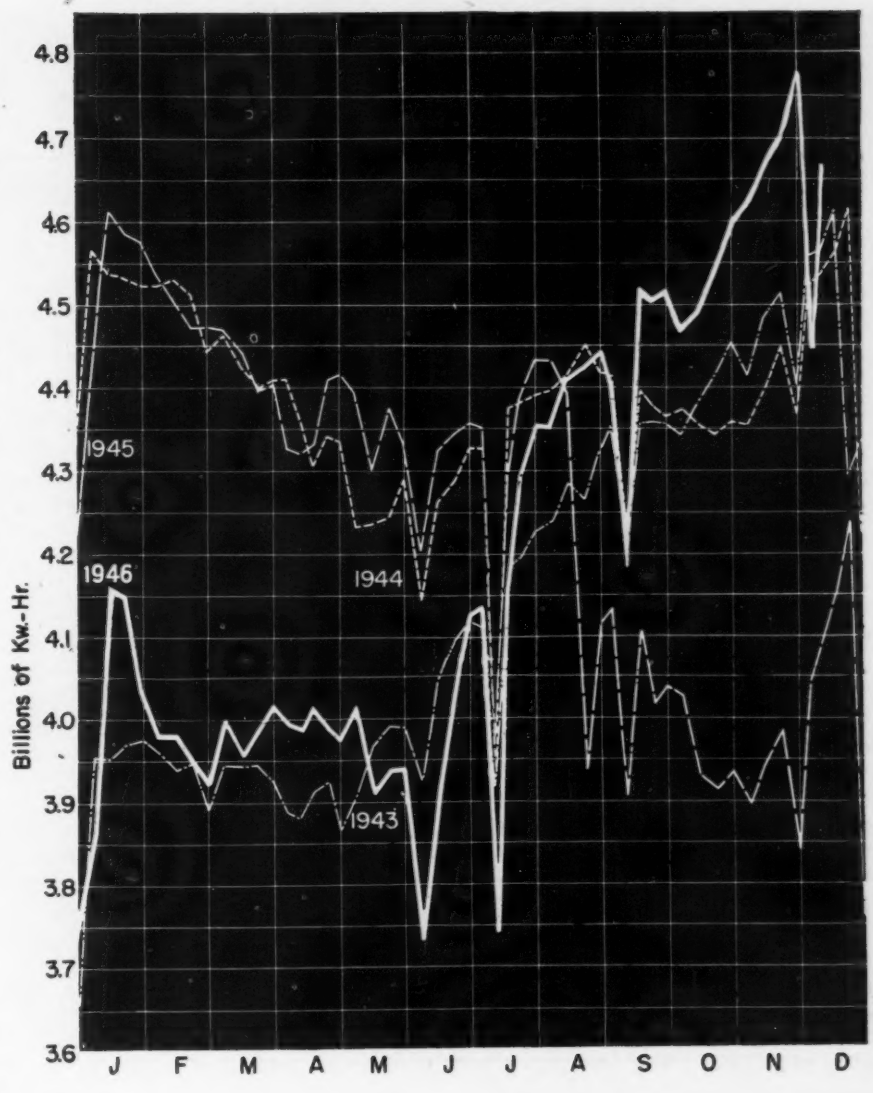
Private Utility Sold

Kenogami, Que., has purchased the local power plant from Price Brothers & Co. for $110,000.



Electric Output Curve Recovers Ground

Despite the coal strike which still gripped the nation, the electric output curve moved upward during the week ended December 7, 1946, according to figures released by the Edison Electric Institute.

The amount of electrical energy distributed by the light and power industry during the week amounted to 4,672,712,000 kw.-hr., comparing with 4,448,193,000 kw.-hr. during the preceding week ending on November 30, when the curve dropped sharply under the weight of the strike coupled with the Thanksgiving Day holiday. Output for the comparable week of 1945, that ended December 9, totaled 4,096,954,000 kw.-hr., this year's figure representing an increase of 14.1 percent.

All of the major geographical regions of the country reported gains as compared with the corresponding week of last year, the Mid-Atlantic group returning to the plus column with an increase of 3.9 percent, against a decrease of 0.1 percent for the week ended November 30. The largest increase was reported by the Pacific Coast group—27.8 percent; the smallest by the Mid-Atlantic group.

Weekly Output, Millions Kw.-Hr.

1946		1945		1944	
Dec. 7	4,673	Dec. 8	4,097	Dec. 9	4,538
Nov. 30	4,448	Dec. 1	4,043	Dec. 2	4,524
Nov. 23	4,765	Nov. 24	3,841	Nov. 25	4,369
Nov. 16	4,700	Nov. 17	3,985	Nov. 18	4,450
Nov. 9	4,682	Nov. 10	3,948	Nov. 11	4,397
Nov. 2	4,628	Nov. 3	3,899	Nov. 4	4,355
Oct. 26	4,602	Oct. 27	3,937	Oct. 28	4,358
Oct. 19	4,540	Oct. 20	3,915	Oct. 21	4,345
Oct. 12	4,495	Oct. 13	3,934	Oct. 14	4,355
Oct. 5	4,478	Oct. 6	4,028	Oct. 7	4,375
Sept. 28	4,518	Sept. 29	4,039	Sept. 30	4,366
Sept. 21	4,507	Sept. 22	4,019	Sept. 23	4,377

Percent Change from Previous Year

	Dec. 7	Nov. 30	Nov. 23
New England	+10.1	+ 0.1	+21.9
Mid-Atlantic	+ 3.9	— 0.1	+15.6
Central Industrial	+11.3	+ 6.8	+21.2
West Central	+ 9.3	+ 6.7	+16.3
Southern States	+22.1	+20.9	+32.1
Rocky Mountain	+ 9.7	+ 8.3	+18.8
Pacific Coast	+27.8	+21.7	+35.7
Total United States	+14.1	+10.0	+24.0

MANUFACTURERS & MARKETS

Simplex Favors Synthetic Compounds Over Natural Rubber in Wire and Cable

Synthetic rubber compounds, according to an announcement by the Simplex Wire & Cable Co., will be the standard insulation for their products in the future. The decision to go all out for synthetic rubber insulations follows long laboratory study and careful interpretation of the results obtained in field usage. The new Simplex policy has been adopted because with synthetic rubber they are getting better results than can be obtained with natural rubber. This action is noteworthy because Simplex is the first manufacturer of wires and cables to accept synthetic rubber as the answer to the often discussed question, "Which is better, natural or synthetic rubber in wire and cable insulation?"

Henry A. Morss, Jr., vice-president of the company, in commenting upon the new policy stated, "This decision exemplifies management's confidence in research and engineering. We feel that the policy of using synthetic rubber exclusively is of direct benefit to our customers. Their cables can now have the exact operating characteristics and properties needed for the conditions where the cable will be installed because the proper insulations can be provided and controlled in manufacturing to give the desired results. Cables with synthetic insulation and jackets can now be supplied to the users with equivalent or better operating characteristics than ever before and at a cost which is to the customer's advantage.

"Whenever it is to the user's advantage, we shall recommend other than synthetic rubber insulation. However, we are well satisfied with synthetic rubber insulations. As some hail the return to natural rubber, we welcome the advent of synthetics and the improvements that are possible with them. We believe that the post-war quality of Simplex wires and cables is better than pre-war.

"We are anticipating a trend toward synthetic rubber. Already, with only a brief history, synthetics have proved themselves best for some of our needs and fully equal to natural rubber for others. One outstanding example in the wire industry is the great success of neoprene jackets. As the synthetics are further improved, and as new ones are developed and produced, they will surely replace natural rubber in more and more products. Ultimately, the conversion will be complete unless prevented by a prohibitive price differential. This conversion may well occur even if natural rubber is appreciably cheaper than the synthetics, because the synthetics are likely to be enough better to command a somewhat higher price in products where high quality is important."

The technical data and reasoning which brought about the declaration are contained in the new booklet, "Our Third Report to Industry on Simplex Synthetic Rubber Insulations," which the company is planning to issue in the near future.

ELECTRICAL EDUCATION—Utility home economics girls are again busy visiting manufacturing plants to see the new appliances and learn about their operation. Typical is the recent visit of the three Western Massachusetts Electric Co's. kitchen queens to Landers, Frary & Clark. Margurette Reinhart, extreme left, showed the home economists the laboratory and the new developments. Elsie Erhardt tries the new toaster, Ruth Sweeney examines the toast and watchful Priscilla Porterfield says "Well done"

Allis-Chalmers Strike Settled at Boston Plant

Production at the Allis-Chalmers' Boston plant began this week as the company and the United Electrical Workers Union (C.I.O.) signed an agreement ending the strike which began last April. The agreement in general follows the pattern of that signed in Pittsburgh on September 16.

A wage increase of 13½ cents per hour was granted. This with the interim 5-cent increase awarded previous to the strike makes the total hourly advance during the year 18½ cents. The union's original demands were for an increase of 30 cents.

The strike at the West Allis works is continuing but with an internal revolt within the ranks of the strikers (ELECTRICAL WORLD, November 30, page 18). The employees are trying to unseat officers of the union so that negotiations toward settlement of the strike may proceed.

RCA To Sell Generating Equipment Outside of U. S.

A complete line of industrial power equipment, including gasoline and Diesel engines, power units and electric generator plants, has been added to the Radio Corp. of America list of products for sale outside of the United States, Meade Brunet, vice-president of R.C.A. and managing director of the R.C.A. International Division, has announced.

The units will be manufactured by Hercules Motor Corp., Canton, Ohio, and the United States Motors Corp., Oshkosh, Wis. The gasoline and diesel electric generator plants will be made in sizes from 500 watts to large plants capable of supplying villages, towns and cities. Gasoline Diesel engine sizes range from 5 to 300 hp. and gasoline and Diesel power units from 5 to 227 hp.

Mr. Brunet has placed the sale of industrial power equipment under the supervision of C. J. Chisholm, manager of radio and appliance sales department of the international division. The newly formed industrial power section is in charge of R. L. Tuttle, sales promotion engineer.

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British, Canadian Aluminum Units Plan Expansion

Plans for large scale expansion of its fabricating facilities in the United Kingdom to provide broader export markets for Canadian aluminum have been announced by Aluminum Ltd. A simultaneous announcement was made in England. A large continuous-type rolling mill for aluminum sheet products is being erected near Newport, Monmouthshire, England. The rolling mill will be completed in 1948 and will have a capacity of 150,000,000 lb. and be capable of expansion to 300,000,000-lb. capacity. A new investment of $10,000,000 is involved. Most of the output will be rolled from ingot from Arvida, Que.

A $500,000 expansion program for the Shawinigan Falls works has also been announced by the Aluminum Co. of Canada, Ltd. This expansion comprises the purchase of new stranding and wire-drawing machines together with alteration to existing buildings at plant No. 1.

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Moves New York Offices

Appleton Electric Co., Chicago, has announced that effective December 2, its New York offices will be located at Room 570, 50 Church St., New York 7, N. Y.

Electric Control, Switchboard Industry Shipments in June Totalled $20,392,000

Plant Activity by Region

Region	Number of Plants Reporting	Shipments June, 1946 ($1,000)	Total Employees Week in June, 1946	Steel Consumption Second Quarter 1946 (short tons) Carbon	Alloy
North Eastern	49	8,395	16,525	5,892	282
North Central	40	10,302	20,126	10,184	645
Southern and Western	21	1,695	2,775	1,385	—

Shipments and Unfilled Orders, Electrical Control and Switchboard Apparatus Industry, June

Product	Shipments June, 1946 ($1,000)	Estimated Unfilled Orders on June 30 ($1,000)
TOTAL	20,392	186,000
Elec. control and switchboard apparatus, total	19,638	176,000
Fuses	927	3,000
Switchgear, panelboards, switchboards, switches, circuit breakers, etc.	18,711	173,000
Other products, total	754	10,000
Electric wiring devices and conduits	122	1,000
Electric motors, generators, and motor generator sets	95	2,000
Other electrtical machinery and equipment	297	5,000
Machinery, except electrical	123	1,000
All other products	117	1,000

Shipments by Electrical Control and Switchboard Apparatus Industry and other industries, June

Industry	Electrical Control and Switchboard Apparatus, Total Shipments June 1946 ($1,000)	Fuses Shipments June 1946 ($1,000)	Switchgear, Panelboards, Switchboards, Switches, Circuit Breakers, etc. Shipments June 1946 ($1,000)
TOTAL	27,557	1,286	26,271
Shipped by electrical control and switchboard apparatus industry	19,638	927	18,711
Shipped by other industries, total	7,919	359	7,560
Wiring devices and supplies industry	921	250	671
Other electrical machinery and equipment industries	5,564	98	5,466
Machinery, except electrical, industries	1,231	1	1,230
All other industries	203	10	193

Electric Truck Mileage Cut by Two-Way Radio

Plans have been completed for the use of two-way radio on electric trucks at the Westinghouse East Springfield plant. The 17 trucks now in operation at this plant travel more than 700 miles a day under the present central dispatching system. Radio dispatching is expected to save many miles of this travel. The radio system will operate in 152-162 megacycles band on 35 watts.

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New Unit Starts Production

Production has started at the new plant of the Indiana Rod and Wire Division of the Phelps Dodge Copper Products Corp. The new plant, costing approximately $4,500,000 and occupying 31 acres, is equipped for copper rod rolling, and wire drawing, stranding and insulating on large tonnage basis.

Summary industry figures, based on reports received from 110 plants in the electrical control and switchboard apparatus industry, showed that these plants shipped products valued at $20,392,000 and employed 39,426 persons, during June, 1946, according to a release issued by the Department of Commerce. The 110 plants are estimated to account for approximately 90 percent of the activity of the entire industry. They consumed 17,461 short tons of carbon steel and 927 short tons of alloy steel during the second quarter, 1946.

June shipments by the industry included electrical control and switchboard apparatus valued at $19,638,000 and other products valued at $754,000. Total electrical control and switchboard apparatus shipments of plants amounted to $27,557,000; of this total, plants in other than the electrical control and switchboard apparatus industry accounted for $7,919,000.

Demand for Copper in Europe Brings Price Advance; Domestic Market Tight

Reports that European consumers of copper were actively seeking supplies, with demand from Great Britain, France, Czechoslovakia, Italy, Sweden and Switzerland greater than tonnages being produced outside the United States, proved to be authentic when the price of foreign copper recently advanced to 18½ cents under the stiff competition. To facilitate the movement of copper to the United States and to maintain domestic price levels, RFC has decided to pay the duty on copper and lead imported after January 1 and sell "at the market."

While industry circles believe it will not be necessary to resume private importation of copper for the next two or three months and that domestic demand will be met by stocks held by the Office of Metals Reserve, OMR's diminishing stockpile, which stood at 150,000 tons on October 31, indicated that industry must get its import machinery moving quickly. OMR has been supplying approximately 50,000 tons of foreign copper a month. This tonnage was brought to the United States duty free, under the war-time powers of the agency, but CPA announced the termination of this public purchase program for copper when it issued on November 20 the order directing OMR to terminate the purchase of copper from foreign sources, subject to the fulfillment of commitments already made.

CPA stated that there is no indication of any easing in the present tight copper supply situation. In the domestic copper market, the demand for wire bars still tops production capacity. This deficiency is being reflected in the electrical manufacturing field, with Electric Auto-Lite being forced to shut down its Toledo, Ohio, plants because of the shortage.

A few days before taking action on the copper purchase program, CPA had taken similar action on lead, ruling that all privately imported lead would be subject to the 1/8 cent per pound tariff, and all lead, whether domestic or foreign, would continue to be allocated. The lead industry expects that the government soon will remove the 25 percent monthly set aside on refined production for an "emergency pool." Allocations from this pool and from the Office of Metals Reserve imports will total 24,000 tons in December.

St. Joseph Lead Co. has increased its premium for special high grade zinc by ¼ cent a pound to 1¼ cents a pound. Heretofore, both high-grade zinc and special high-grade zinc had commanded a premium of one cent a pound over the price for prime western grade.

KITCHEN planning services of Hotpoint include a picture of the actual equipment in the home, arranged to fit the customer's own kitchen

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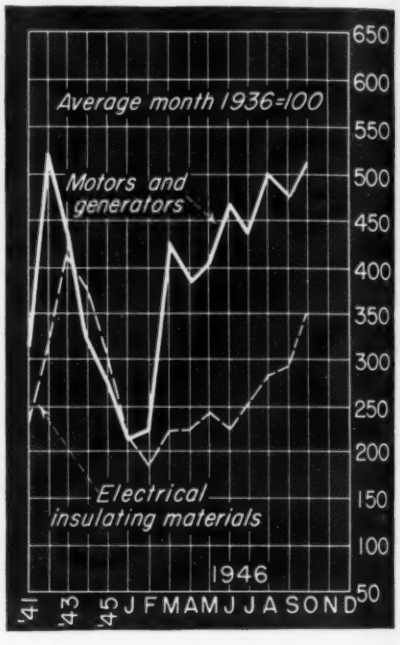
Generator Orders Advance; Insulating Materials Rise



Orders received for motors and generators during the month of October advanced, according to figures released by the National Electrical Manufacturers Association. The index compiled by NEMA moved upward to 509 from 471 (revised) in September, an increase of 8 percent. This compared with 323 in October, 1945, this year's figure being a raise of 58 percent.

The 1942, 1943, 1944 and 1945 monthly indexes include an adjustment for cancellations reported up to December 31, 1945. No adjustment has been made for renegotiation of contracts. Single-phase, integral-hp. motors have been added to the series beginning with the month of January, 1944.

Sales billed on electrical insulating materials for October advanced to 352 from 294 in September, an increase of 19 percent. This compares with 206 in October, 1945, this year's figure representing an increase of 71 percent.

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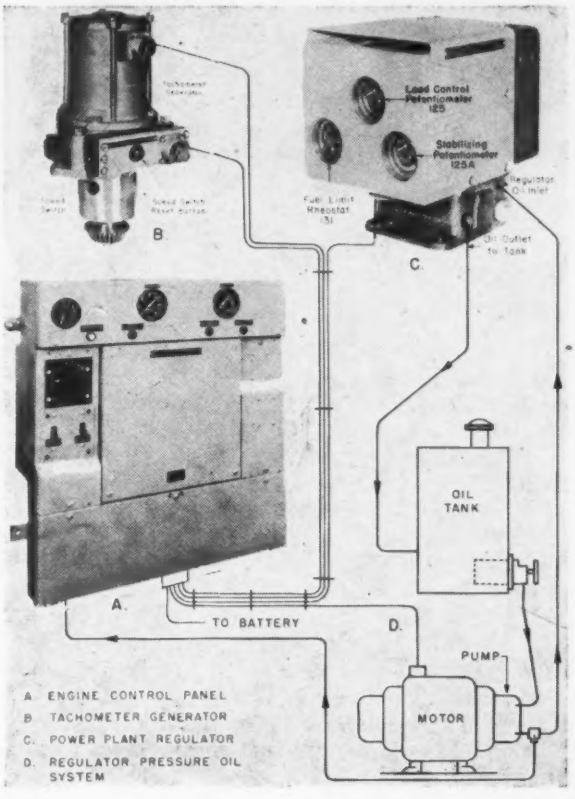
Magnet Has 2-Ton Pull

Development of an oil-cooled, 1½-ton, iron-core, electro-magnet which exerts a 4,000-lb. pull has been revealed by the Westinghouse Research Laboratories. Designed by Dr. J. E. Goldman, it utilizes 17 gal. of oil per minute to cool the 28,000-watt, 6,000-turn unit.

NEW EQUIPMENT

Diesel-Electric Load, Speed Controlled by New Systems

A NEW ELECTRO-HYDRAULIC governing system for diesel-electric drives, adaptable for locomotives, ship propulsion, mobile and stationary power plants, oil well drilling rigs, and industrial uses where diesel-electric drives are employed, has been developed by the General Electric Co., Schenectady 5, N. Y.



Designed especially for power plant load control, the salient features of the system, according to the company engineers, are exceptional speed control with good stability, high responsiveness to changes in generator demand and engine ability, engine protection, remote control and multiple-unit operation.

Speed measurement is performed by an engine-driven a.c. tachometer generator whose output voltage is proportional to speed. Speed is maintained at preset values, by feeding the speed indication to a hydraulic servo-mechanism which controls the engine fuel and generator excitation, and makes possible full utilization of the engine without danger of overloading.

The system operates over a wide speed range, and permits the use of the lowest possible engine speed commensurate with power requirements. The use of feedback from the electrical load allows the control to anticipate the speed changes which would be produced by changes in generator demand, and therefore minimizes transient regulation.

Engine protection safety features are built in the governing system. Overspeed protection is provided by an overspeed trip which automatically cuts off the fuel supply when the engine overspeeds. If the engine lubricating oil pressure drops to the danger level, a short-circuiting switch drops the engine speed automatically to idle. Similar type switches, functioning with the same end result, operate at high temperatures or occurrence of a ground in the main power circuit.

Remote control in this system is achieved. The manual and automatic controls may be located at any desired distance from the prime mover. Speed modulation can be infinite or by definite steps as in throttle notches. The engine-speed indicator is remote from the fuel control.

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Two Welding Developments Provide Productive Power

TWO NEW developments which are incorporated in the Progressive Welder Co., 3050 East Outer Drive, Detroit 12, Mich., Metals Show exhibit are the new flash welder and an improvement in automatic welding machines.

The new flash welder is capable of handling fairly heavy sections of aluminum and operates through storage batteries. It is reported that the use of the batteries plus a new method of mechanical machine actuation has solved the problem of how to flash weld aluminum where the power supply is relatively limited. It is reported to knock off the peaks and fill in the gullies in the demand curves.

The second development is the 30-gun automatic welding machine. This machine embodies a new technique in multiple spot welding, utilizing a low reactance circuit.

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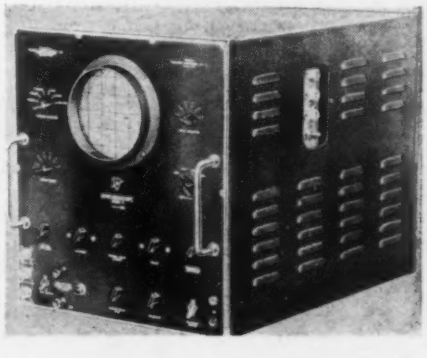
Synchroscope Generator Synchronizes Pulses

A SYNCHROSCOPE specially designed for the visual examination of the fine structure of periodic waveforms in television, pulse time modulation, sonic depthfinders, geophysical exploration and loran equipments has been announced by the electronics division, Sylvania Electric Products, Inc., 500 Fifth Ave., New York 18, N. Y.

The instrument includes a 5-in. cathode ray oscilloscope; trigger generator for synchronization; space for the addition of a video amplifier and r.f. envelope viewer; adjustable time delay phasing circuits; and seven input connectors and selector switch for viewing of separate external circuits.

Television applications include study of the shape, amplitude and duration of video pulses ranging from a fraction to several hundred microseconds. Used with a video amplifier and an r.f. envelope viewer, it provides a means of visual examination of r.f. pulse envelopes or waveforms up to and including the microwave region.

Many combinations of trigger and sweep pulses may be produced to feed synchronizing pulses to a variety of external equipments at pulse repetition



frequencies up to several thousand per second. Synchronized voltage waveforms are produced on the screen of the cathode ray tube for visual study.

Sweep speeds of 0.01, 0.05, 0.2, 1, 2, and 5 in. per microsecond with a minimum sweep amplitude of 4 in. on a 5-in. cathode ray tube are provided. The sweep may be started with external positive or negative signal; delayed up to 90 microseconds from internal trigger; or the sweep repetition frequency may be determined by internal or external trigger.

Internal trigger output characteristics provide a repetition frequency of 500, 1,000, 2,000 and 5,000 pps.; a positive pulse reaching 220 volts minimum in 0.3 microseconds, adjustable in time from 75 microseconds before to 25 microseconds after start of sweep.

The synchroscope is rated at 200 watts, 105-125 volts, 50-60 cycle a.c. and is supplied with or without an r.f. detector and video amplifier.

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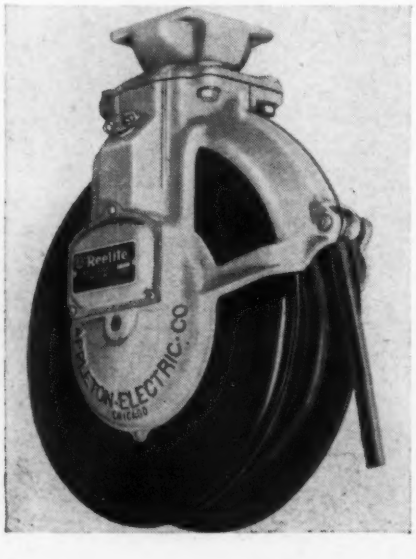
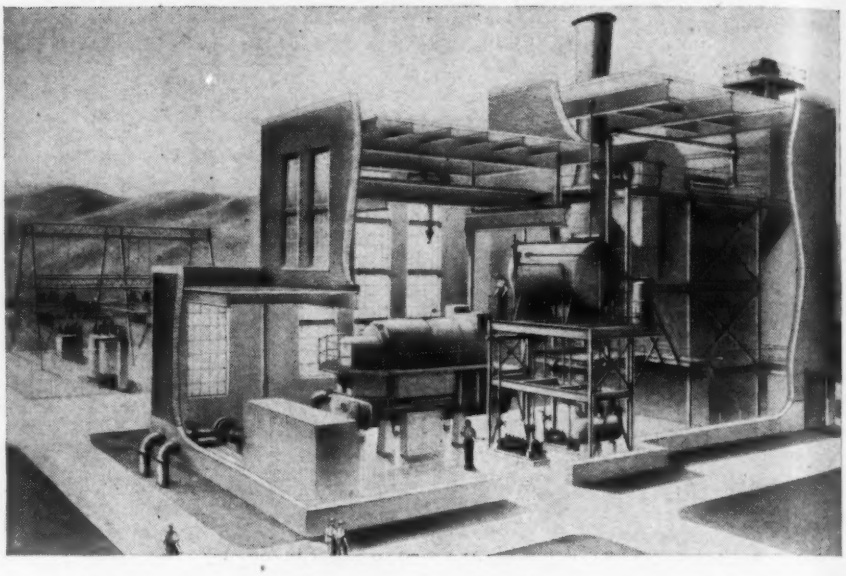
Reel Takes Up, Pays Out Cord Automatically

A NEW type YS automatic take-up and pay-out for conductor cable has been announced by Appleton Electric Co., 1701-59 Wellington Ave., Chicago 13, Ill. It was especially designed to team up with any traveling electric hoist within its rated capacity.

The controlled reel takes up and pays out the cable in harmony with the movements of the hoist and keeps the conductor cord taut at all times. It utilizes oilless bearings throughout its construction. It is reported that removal of the outer covers is the only dismantling required to service brushes and power spring fully, or to make solderless line connections direct to the terminal block.



"Packaged" 5,000-Kw. Power Plant



A 5,000-KW. standard power plant—containing the boiler, turbine generator, pumps, wiring, piping and other essentials—has been announced by Westinghouse Electric Corp., Pittsburgh, Pa. The boiler has a rating of 7,500 lb. per hour, an operating pressure of 450 psi. and a steam temperature of 760 deg. F. The turbine operates at 3,600 rpm. and is capable of developing its maximum rating of 6,250 kw. continuously with cooling water temperatures as high as 32 deg. C.

Although "standard" in design, the plant with minor revisions can be made to utilize oil, gas, wood, peat, high-grade bituminous or a lignite. It can also be adapted to locations having make-up water problems—from areas where the supply is excellent to others where the poorest kind of water may be almost non-existent, the company reports.

The plant was designed by Ebasco Services, Inc. for Westinghouse International. It utilizes one boiler to supply steam to the one turbine.

A contribution to over-all efficiency is obtained by utilizing a spreader type coal stoker coordinated with a continuous discharge traveling grate having automatic speed control. An economizer for raising the final temperature of feed water to 276 deg. F. before it enters the boiler is included as standard equipment. To obtain similar efficiency in the oil-fired unit, an air preheater replaces the economizer. The boiler is of modern bent tube design employing water cooled walls and designed to operate at an efficiency of 83 percent even when fired with as poor a fuel as lignite. A boiler efficiency of 85 percent is obtainable with an oil-burning installation, the company reports.

The electrical system for the power plant is laid out along conventional lines. Standard generating voltage is 13.8 kv. but other specified voltages are available. Both high- and low-voltage switchboards are of the metal-enclosed, dead-front type. All station auxiliary feeder circuits are protected by automatic air circuit breakers equpped with both instantaneous trips for short circuit protection and thermal overload relays with time delay for overcurrent protection.

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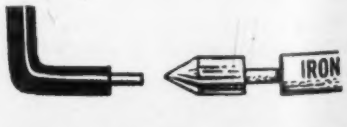
High Dielectric Tubing Doesn't Crack or Fray

A NEW high dielectric tubing, called Ben-Har, which does not stiffen or support combustion, has been announced by Bentley, Harris Manufacturing Co., 1002 Bentley St., Conshohocken, Pa. In a soldering iron test, illustrated, the tubing was subjected to a bend of 90 deg. and was unaffected by the heat conducted through the wire, did not fray or crack. It remains flexible and retains its dielectric strength, the company reports.

It is available in Grade A with dielectric strength of 5,000 to 7,000 volts, and Grade B, 2,500 to 4,000 volts. It is made in standard sizes in black, red, green, yellow and brown for ease of circuit identification. It is available in standard 36-in. lengths or longer if desired. Sizes up to No. 2 are available in 500-ft. coils.

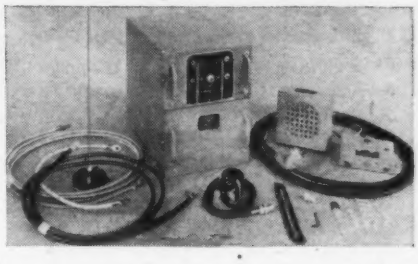


Mobile Transmitter, Receiver Has Low Battery Drain

A NEW VHF transmitter-receiver for use in mobile equipment has been announced by Commuications Co., Inc., 300 Greco Ave., Coral Gables 34, Fla. The unit, known as the Comco Model 210, requires 1.1 cu. ft. of mounting space and has a battery drain on standby of 3.8 amp.

The transmitter and receiver sections are on one chassis and the power supply on another, and both are removable for servicing. Eight instant heating tubes are used in the transmitter, requiring no standby battery drain. The circuit uses indirect frequency modulation of the narrow swing type, crystal controlled. The receiver is a dual-conversion, crystal-controlled superhetrodyne, with 17 tubes and 24 tuned circuits which, the company states, provides a sensitivity better than one microvolt.

The power supply contains a 600-volt dynamotor which provides the voltage supply for the transmitter and a vibrator power pack with cold cathode rectifier tubes which furnish 130 volts B plus to the remainder of the set.



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Five Communication Equipment Pieces Seen

FIVE NEW PIECES of communication equipment, which are designed primarily for railroad usage, were shown at the American Association of Railroads by the Western Electric Co., 195 Broadway, New York 7, N. Y. They are the mobile, phase-modulated radiotelephone, the teletypewriter subscriber set, the portable railroad telegraph station test set, the telegraph repeater, and a carrier telegraph system.

The radiotelephone equipment operates in the 152- to 162-mc. frequency band and provides two-way communications for on-train, train-to-train and fixed-point-to-train. The 128B2 teletypewriter subscriber set is designed for operation over line facilities into a 16B1 repeater and may be arranged for either type A or B polarential operation on a single or two-wire basis. The set may be connected to the teletypewriter by either the single-wire loop method, the two-wire loop method, or the two-wire polar relay receiving method.

The telegraph station test set, No. 161A1, is designed to measure distortion and interference with telegraph signals by means of selected signals. It may also be used to measure current or voltage in external circuits of a telegraph repeater. The 16B1 telegraph repeater was designed for operation over grounded circuits, either open-wire or non-composite cable conductors.

A 40AC1 carrier telegraph system consists of an originating bay which has a capacity of two channels and in addition contains all the common equipment such as power supply, line coils, and other devices needed for a twelve-channel system. When twelve-channel operation is desired, a first supplementary and a second supplementary bay, each providing an additional five channels, may be added to the originating bay as needed.

The unit operates from a 115- or 230-volt, 50- to 60-cycle power supply and is reported to be usually free from earth currents induced by aurora borealis.

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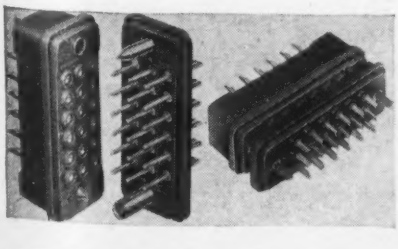
Monoblock Connector Cuts Space Requirements

A NEW MULTIPLE-CONTACT CONNECTOR, just developed by the Winchester Co., 6 East 46th St., New York 17, N. Y., is particularly adapted to limited space applications where plug-in operation is required. The rectangular monoblock connector can also be supplied with a self-contained locking device which eliminates the necessity of any external clamping arrangement.



Molded of Melamine plastic, the one-piece inserts are reported to reduce the danger of flashover due to moisture and dust accumulations. Two guide pins, acting as ground contacts, perform the additional functions of alignment and polarization.

The multiple telescoping barriers which serve to isolate contacts increase both surface creepage and air gap between adjacent contacts. Thus the connector may be used at high potentials. Minimum air gap of ¼ in. is maintained between all contacts. Contacts are designed for use with a maximum wire size of No. 16AWG.

Available in two sizes, 18 contacts and 12 contacts, this connector can also be supplied fitted with conventional straight type contacts.

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Warning Lamp Condenser Increases Battery Life

A NEW electric signal light to be used as tool truck markers, "men working" warning lights, obstruction markers, etc., is now available for civilian use, Julian A. McDermott Corp., 115 East 60th St., New York, N. Y., developers of the product have announced.

The product, called Electric "Pulsing" Lantern, is equipped with a naval fresnel lens and may be obtained in clear, red or light red colors. The unit operates on two 6-volt battery packs, connected in series, and utilizes No. 1452. Standard flash rate for use in traffic is 70 per minute and each flash is of 1/10-sec. duration.

The basic principal of operation involves the charging and discharging of a condenser, which is reported to decrease the peak currents drawn and thereby to increase the energy available from the batteries. The company reports a battery life of at least two months on the basis of a 16-hr. per day usage.

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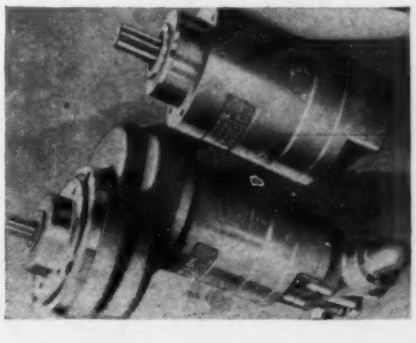
Speed and Pick-Up Control Available in New Motor

A NEW MOTOR in 3- and 5-hp. capacities for adaptation where shock loads present a problem has been announced by the Denison Engineering Co., Columbus 16, Ohio. The motor features a floating drive wherein constant pressure contact is maintained between driving and driven elements, without the use of me-



chanical linkages or connecting rods. It is self starting, operates in either direction, can be instantaneously reversed, and is self-lubricating.

When equipped with a speed control valve, the motor can be preset to operate at any speed within its capacity. A plunger device interlocked with the speed control valve permits instant acceleration from the preset speed to full motor speed. When the plunger is released, the motor returns to its preset speed. This plunger device can be controlled by lever, cam or other arrangement depending upon its application. If the motor is used without a speed control valve and is powered by an independent pumping unit, the speed may be regulated by adjusting the volume of oil delivered to the motor.

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Wall Shelves Have Built-In Fluorescent, Incandescent

A HANGING WALL SHELF with a built-in lamp for use in nearly all rooms in the home or in the office has been developed by the American Utility Products, Inc., 2555 Bellevue Ave., Detroit 7, Mich. It is available in all finishes in the fluorescent type and in white enamel only in the incandescent type. Both styles are made into 20-in. shelves.

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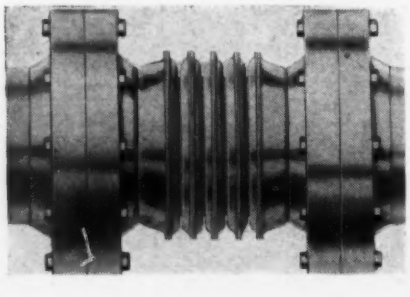
Expansion Joints Usable To 1,600 Deg. F., 1,000 Psi.

A SERIES of expansion joints for transmission of steam, oil, gas and diesel exhausts has been announced by Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill. Various designs are available to accommodate pressures up to 1,000 psi., up to 1,600 deg. F., and in standard pipe sizes up to 24 in.

The joints, called Magnilastic, are made in a wide range of metals to compensate for temperature conditions and corrosion factors.

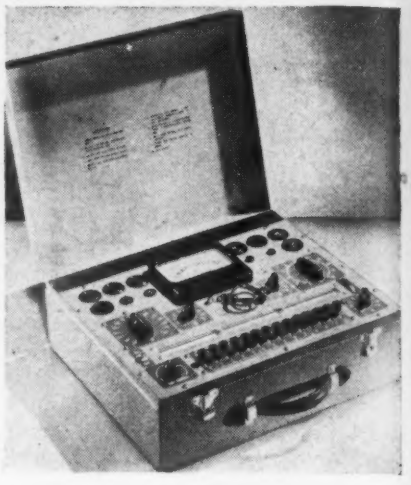
Joint illustrated is of all-heli-arc-welded stainless steel construction and can be used on pressures up to 400 psi. at temperatures up to 1,600 deg. F.



Two New Tube Testers Employ Patented Circuits

TWO NEW electron tube testers based on a patented circuit suitable for all standard receiving and several special types of tubes have been announced by Sylvania Electric Products, Inc., 500 Fifth Ave., New York 18, N. Y.

The new instruments, a counter type 139 and a portable type 140, provide testing facility for shop, spot testing in the home, industrial electronic applications, automobile and mobile radio equipment. Accurate checks of receiving type tubes used in broadcast receivers, FM, television, industrial electronic controls, record players and photoelectric devices may be made under dynamic conditions and without damage to tubes, the company reports.



Design of the testers includes extra sockets and switch contacts for modernization as new types of tubes are developed. Test for shorts may be made without danger of grid-filament contacts due to electrostatic attraction in battery type tubes where spacing between these elements is close. Provision is also made for noise testing.

Both instruments are supplied for 105-125 volts, 50-60 cycle a.c. operation and are rated at 20 watts. Both sets employ 4½-in. meters.

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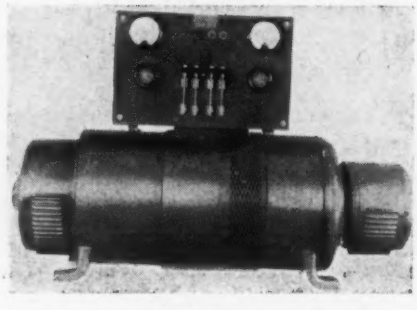
Electroplating Generators Made in Six Sizes



A COMPLETE NEW LINE of low-voltage electroplating generators is being announced by Motor Generator Corp., Troy, Ohio. The line includes six models ranging in size from 100 amp. at 6 volts to 2,000 amp. at 6 volts or 1,000 amp. at 12 volts.

Illustrated is the No. 130 Model which is rated 1,000 amp. at 6 volts. The generator is driven by a 10-hp. motor at 1,200 rpm.

With this double commutator machine, the commutators can be connected in series to get 12 volts or less for barrel plating, electrocleaning, etc. Because of the size, this machine is compound wound and equipped with interpoles or commutating poles which insure sparkless commutation, taking the place of diverter poles which are used in the smaller sets. Special metallic brushes are used.

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All-Steel Construction Cuts Motor Size 35 Percent

ALL-STEEL CONSTRUCTION (frame, feet and end brackets) makes possible a squirrel cage induction motor that is 35 percent smaller in size than its predecessor, reports the Westinghouse Electric Corp., Pittsburgh, Pa., in releasing data on the company's new line of motors.

Known as the "Life-Line" motor, it is available in drip-proof, splash-proof and fan-cooled construction. Its special features are: a frame rolled from steel plate that is as thick as it would be if made from cast iron; feet and end brackets of pressed steel; all welded construction; self-sealed, pre-lubricated ball bearings that provide lubrication for five years or longer without repacking; rounded corners at top and bottom of slot cells that eliminate creasing cell insulation; special synthetic resin-covered wire for coils; dynetrically balanced rotor; and interchangeability of parts as there are only 13 parts and subassemblies.

It is available in sizes from ½ to 20 hp.; in voltages of 208, 220, 440, and 550; in two and three phase; in frequencies and speeds of 60 cycle,—3,500, 1,750, 1,150 and 865 rpm.; of 50 cycle—2,920, 1,450, 965, and 720 rpm.; and 25 cycle—1,450 and 725 rpm.; and in NEMA Standard dimension frames 203 to 326.